TECHNICAL REVIEW DOCUMENT

For Renewal of

OPERATING PERMIT 95OPPB088

to be issued to:

CF&I Steel, LP
dba Rocky Mountain Steel Mills
Rod/Bar Mill
Pueblo County
Source ID 1010048

January 14, 2004

Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the renewed Operating Permit proposed for this site. The original Operating Permit was issued October 1, 1998, and expires on October 1, 2003. This document is designed for reference during review of the proposed permit by the EPA, the public and other interested parties. The conclusions made in this report are based on information provided in the permit renewal application submitted on October 1, 2002, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at http://www.cdphe.state.co.us/ap/Titlev.html. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit renewal application have been reviewed in accordance with the requirements of Colorado Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This Operating Permit incorporates and shall be considered to be a combined Construction/Operating Permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this Operating Permit without applying for a revision to this permit or for an additional or revised Construction Permit.

In addition to the changes requested by RMSM in the renewal application the Division has included changes to make the permit more consistent with recently issued permits, including comments made by EPA on other Operating Permits, as well as to correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

Source Description

The steel plant is located in Pueblo County at the south edge of the City of Pueblo, Colorado. The area in which the plant operates is designated as attainment for all criteria pollutants. The total plant emissions classify the plant as a major source with respect to Prevention of Significant Deterioration (PSD) requirements.

Rocky Mountain Steel Mills (RMSM) uses two (2) electric arc furnaces to produce steel. The steel is then used in the production of various steel products. RMSM elected to divide the plant by major production function and submit separate Title V permits for each production function. This places the compliance responsibility on the designated production manager making the operating, budget and scheduling decisions. For this document the word Mill" will be used to refer to the various processes related to the production function. The word Mill" is not referring to a separate facility. The following separate Title V operating permits were issued for the RMSM plant:

Rail Mill	95OPPB086	Steelmaking	95OPPB097
Rod/Bar Mill	95OPPB088	Utilities	95OPPB098
Seamless Mill	95OPPB089		

The Rod/Bar mill manufactures steel rods and bars. The rod and bar production process starts with billets produced by the steelmaking operation. As noted above the steelmaking process is addressed in a separate Title V permit. The billets are color coded with paint to identify their intended use. The billets are passed through a heating furnace to raise the billet temperature to 2100°F. The hot billet is then passed through a series of rollers to shape the desired final product. The final products can be coil rebar, straight bundled rebar or rods. The coil rebar shapes are delivered to pouring reels for forming into the final product. The straight bundled rebar passes from the rolling mill to cooling beds, is color coded by size, and bundled for shipment. The rods pass to product storage or loadout.

The rolling process requires the use of a lubricant. The previous Operating Permit application estimated significant volatile organic compounds were released when the lubricant contacted the hot steel. In the renewal application RMSM stated the Material Safety Data Sheets (MSDS) for the lubricants currently used do not identify any volatile compounds in the lubricants. The renewal application requested the lubricant be considered an insignificant activity based on the lack of volatile compound emissions. The rolling mill is now listed as an insignificant emission source.

The following tables display the Potential to Emit for the individual production processes as reported in the separate Title V renewal applications, and the total Potential to Emit for the plant. The actual emissions reported in the Division database for the 2002 data year are included for comparative purposes.

NOTE: The 2002 actual NOx emissions in the following tables are based on APENs submitted by RMSM using an emission factor of 0.07 lb/mmBTU (equivalent to 70 lb/mmSCF using 1000 BTU/SCF natural gas). This factor is from a Federal Consent Decree not yet reflected in this permit. This permit uses a NOx emission factor of 280 lb/mmSCF, which is from AP-42, Section 1.4 (Ver. July, 1998). This permit will be modified in the future to reflect the consent decree requirements.

ROD/BAR MILL
POTENTIAL TO EMIT, TONS PER YEAR

	PM	PM_{10}	NO_X	SO_2	VOC	CO
Billet Furnace	3.29	3.29	121.1	0.26	2.38	36.33
Paint Use					2.90	
TOTAL	3.29	3.29	121.1	0.26	5.28	36.33
Division Database - 2002 Actual Emissions	3.29	3.29	30.28	0.26	4.51	36.33

PLANT POTENTIAL TO EMIT, TONS PER YEAR

	PM	PM_{10}	NO_X	SO_2	VOC	CO	Lead
Rail Mill	2.74	2.74	100.93	0.22	3.78	30.28	
Rod/Bar Mill	3.29	3.29	121.1	0.26	5.28	36.33	
Seamless Mill	8.42	8.42	219.7	0.66	35.86	93.12	
Steelmaking	368.1	212.6	707.3	779.1	390.9	20,047	10.3
Utilities	89.6	63.1			6.88		
TOTAL	472.2	290.2	1149.03	780.2	442.7	20,206	10.3
Division Database - 2002 Actual Emissions	268.9	193.8	542.6	267.6	120.3	1234	0

PTE PLANT EMISSIONS PROVIDED BY RMSM

	Rail, Pounds	Rod/Bar, Pounds	Seamless, Pounds	Steel, Pounds	Utilities, Pounds	TOTALS		Division Database 2002 Plant Totals, Tons
						Pounds	Tons	
Lead	0.36	0.43	1.11	3773.4		3775.3	1.89	
Toluene 108883	126.4	197.1	2427.2		62.3	2813.1	1.41	2.1
MIBK 108101	3.46	52.70	3127.9			3184.1	1.59	
Arsenic Compounds	0.14	0.17	0.44	19.0		19.8	0.01	0.01
Cadmium Compounds	0.79	0.95	2.66	91.0		95.4	0.05	0.02
Chromium Compounds	1.01	1.21	12.1	517.0		531.3	0.27	0.12
Mercury	0.19	0.23	0.58	617.0		618.0	0.31	0.14
Manganese	0.27	0.33	0.84	12565.0		12566.4	6.28	2.80
Nickel Compounds	1.51	1.82	4.65	82.0		90.0	0.04	0.02

	Rail, Pounds	Rod/Bar, Pounds	Seamless, Pounds	Steel, Pounds	Utilities, Pounds	TOTALS		Division Database 2002 Plant Totals, Tons
						Pounds	Tons	
Methanol 67561	27.9	31.2	99.9			159.0	0.08	
2-Butoxyethanol 111672	81.4		757.2			838.7	0.42	
Xylene 1330207	31.9		4480.6		24.0	4536.5	2.27	
MEK 78933	98.4	163.9	1544.4			1806.7	0.90	1.39
Glycol ethers	92.9	21.4	1354.8			1469.1	0.73	1.92
Methylene chloride 75092	126.8		0		0.12	126.9	0.06	
Hexane 110543	1300.0	1560.0	3993.0		76.7	6929.7	3.46	
Benzene	1.51	1.82	4.65		43.16	51.14	0.03	
Formaldehyde 50000	54.1	64.9	166.3			285.3	0.14	
2,2,4-Trimethylpentane 540841					38.4	38.4	0.02	
Ethylene glycol	21.9	147.3	0			169.2	0.08	
Vinyl Acetate			50.6			50.6	0.03	
Napthalene					0.36	0.36	0	
Dichlorobenzene					0.12	0.12	0	
Perchloroethylene 127184								0.04
1,1,2-Trichloroethane, 79005								0.04
TOTALS, lbs	1971.0	2245.4	18029.0	17664.4	245.2	40154.9		
TOTAL, tons	0.99	1.12	9.01	8.83	0.12	20.08	20.08	8.60

[a] Chemical Abstract Services identification number

There are no permit limits for the HAPs. The Potential-To-Emit is an approximation based on current material usage projected to the reported design production rate of the various mills. It should be understood that the PTE might vary considerably as the type and amounts of various materials used changes in response to process or production requirements.

Emission Sources

The following sources are specifically regulated under terms and conditions of the Operating Permit for this production center.

Billet Heating Furnace

1. Applicable Requirements: The billet furnace applicable requirements were established by Construction Permit 93PB1073-5. RMSM requested the emission limits be changed to reflect the revision of the AP-42 emission factors (Ver July 1998, Section 1.4) since the construction permit was issued. The limits were modified directly in this renewal of the Operating Permit in accordance with Section I, Condition 1.3 of the Operating Permit. Experience found the previous estimate used for the fuel-use to production ratio was too low. RMSM requested the fuel-use limit also be increased.

Engineering judgment and experience find that fuel burning sources operating on pipeline quality natural gas would not be expected to violate the 20% opacity standard of Colorado Regulation No. 1, Section II, A.1. On that basis, the Division believes it is not necessary to include the 30% opacity standard of Colorado Regulation No. 1, Section II, A.4 as an applicable requirement for this source.

The previous version of the Operating Permit failed to include the applicable requirement of Colorado Regulation No. 1 for fuel burning equipment. The furnace is subject to the particulate standard for fuel burning equipment as stated in Colorado Regulation No. 1, Section III.A.1.b. The regulation requires compliance with a particulate matter emission limit (PE) of 0.12 pounds per million Btu at the boiler design heat input rate, based on the following equation:

$PE = 0.5(FI)^{-0.26}$ where FI = Fuel Input in Million Btu per Hour, and
PE = Particulate Emission limit in pounds per million Btu of heat input.

2. Emission Factors: The AP-42 emission factors for the furnace have changed since the Operating Permit was issued. RMSM requested the new emission factors (Ver July 1998, Section 1.4) and the associated permit limits be provided in the renewal of the Operating Permit. RMSM also requested the heat input design rate be corrected to 225 MMBtu per hour, and the fuel use limit increased.

A performance test for nitrogen oxides and carbon monoxide is required to demonstrate compliance with the requested emission limit.

Since there is no air pollution control equipment on the furnace stack the emission factors and the fuel consumption may be used to directly calculate the estimated emissions.

The Division originally drafted the operating permit with a NOx limit based on an emission factor of 70 lb/mmSCF. This emission factor is based on changes required under the Federal Consent Decree. The Division later determined that it was not appropriate to make that emission factor change during this permit renewal process. The Division's public comment responses claimed that the CO & NOx limits and emission factors would be revised to reflect the limits and factors contained in the existing Title V permit (NOx = 550 lb/MMSCF, CO = 40 lb/MMSCF). This is not the case. The Division will draft the permit using the most current AP-42 emission factors as mentioned above (NOx = 280 lb/MMSCF, CO = 84 lb/MMSCF). The emission factors and limits will be revised to those established in the EPA Consent Decree via a separate permit modification process.

3. Monitoring Plan: The natural gas fuel use is monitored to calculate the estimated emissions

to demonstrate compliance. The Division accepts that the combustion of pipeline quality natural gas in this furnace is not expected to exceed the opacity standard or create significant amounts of sulfur dioxide emissions. The emissions are to be estimated each calendar month to calculate a 12 month rolling total and demonstrate compliance with the permit limits.

The combination of the emission factor and the heat content of the boiler fuel precludes exceeding the short term particulate emission standard while burning fuel oil or natural gas as demonstrated by the following calculations:

$$\text{Natural Gas: } \frac{7.6 \text{ lb}}{\text{MMscf}} \text{ X } \frac{\text{scf}}{1000 \text{ Btu}} = 0.008 \frac{\text{lb}}{\text{MMBtu}} < 0.12 \frac{\text{lb}}{\text{MMBtu}}$$

RMSM only needs to retain a file copy of the above calculations for demonstrating this compliance in the absence of any other credible evidence.

4. Compliance Status: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and other available information.

Paint Use

1. Applicable Requirements: This source is grandfathered from the regulatory requirement for a construction permit. Volatile organic compounds are the primary emissions expected from this source. Since the area is in attainment for ozone only the State-wide requirement of Section V of Colorado Regulation No. 7 requiring the proper disposal of VOC materials applies. The emissions have to be calculated for each calendar year and reported for the payment of emission fees.

Engineering judgment and experience find that this type of source would not be expected to violate the 20% opacity standard of Colorado Regulation No. 1, Section II, A.1. On that basis, the Division does not believe it is necessary to list the 30% opacity standard of Colorado Regulation No. 1, Section II, A.4 as an applicable requirement for this source.

2. Emission Factors: A simple process related emission factor can not be developed for the paint volatile organic compound emissions because of the wide variation in the type of material used and the variation of the volatile organic compound content of the materials used in the painting and any related cleanup. The estimated annual emissions must be calculated from a mass balance procedure using the material use inventory and the appropriate volatile organic compound content of the material. Some of the materials may be recovered in the waste handling practices. An inventory of the recovery must be maintained if the recovery is to be deducted from the emissions estimates.

3. Monitoring Plan: The painting VOC estimated emissions will be calculated based on the material consumption as noted above. The Division experience has been that a monthly evaluation of the material use inventory provides for improved accounting of the use of the various materials. The estimated emissions, however, will be calculated on an annual basis. The Division accepts that this type of VOC source is not expected to create an opacity problem and opacity monitoring is not required. Since the material content may change with a new purchase, the Material Data Safety Sheets (MSDS) for the materials must be kept on-site for review during any inspection.

4. Compliance Status: The Division accepts that this source was in compliance at the time the application was prepared based on the information provided in the application and the self-certification performed by the applicant.

Accidental Release Program – 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provisions must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Based on the information provided by the applicant, this facility is not subject to the provisions of the Accidental Release Prevention Program (Section 112(r) of the Federal Clean Air Act).

Emission Factors

From time to time published emission factors are changed based on new or improved data. A logical concern is what happens if the use of the new emission factor in a calculation results in a source being out of compliance with a permit limit. For this Operating Permit, the emission factors or emission factor equations included in the permit are considered to be fixed until changed by the permit. Obviously, emission factors dependent on the fuel sulfur content or heat content can not be fixed and will vary with the test results. The formula for determining the emission factors is, however, fixed. It is the responsibility of RMSM to be aware of changes in the factors, and to notify the Division in writing of impacts on the permit requirements when there is a change in factors. Upon notification, the Division will work with the permittee to address the situation.

Alternative Operating Scenarios

No alternative operating scenarios were requested.

Permit Shield

The intent of the permit shield is to provide limited protection to the facility in the event of an error in the evaluation of whether a regulation, or portion of a regulation applies. The facility identifies an issue and presents its position. The Division reviews the position. If the Division and the facility mutually agree on the position, the issue is recorded in the permit. If, at a later date, it is determined that an error was made in the mutual decision, the facility is protected from enforcement action until the permit can be reopened and the correct requirements and a compliance schedule inserted.

For this Title V application, where a request for the shield protection for a specific applicable requirement, or a specific section of an applicable requirement, and a proper justification provided for the request, the shield was granted. The permit shield was not granted for requests for a blanket protection from all portions of a regulation. The Division finds this type of blanket protection is too broad and general for the shield protection to be properly interpreted and granted.

Compliance Assurance Monitoring (CAM) Plan

The following emission points at this facility use a control device to achieve compliance with an emission limitation or standard to which they are subject and have pre-control emissions that exceed or are equivalent to the major source threshold. They are therefore subject to the provisions of the CAM program as set forth in 40 CFR Part 64 as adopted by reference into Colorado Regulation

No. 3, Part C, Section XIV: **None**